IMPACT®

Uni-Vent®
Eagle

Model 754
Portable Ventilator

Uni-Vent® Eagle™

Model 754 Portable Ventilator

OPERATOR TRAINING PROGRAM FOR:



Critical Care Transport



Emergency Services





Aero medicine

Uni-Vent® Eagle™

Model 754 Portable Ventilator Features

- Microprocessor control of all functions including automatic monitoring of internal battery and external power sources, internal compressor and external gases.
- Extensive alarm monitoring of operating, non-operating and advisory conditions.
- Contemporary design to facilitate transport and placement.
- Gas-efficient electronic control circuitry eliminates all pneumatic-logic circuits, and any dependency on gas for operating power.
- Rechargeable batteries, fully compatible with vehicular electrical systems and airborne environments.

Uni-Vent® Eagle™

Model 754 Portable Ventilator Features

Cont….

- Fully self-contained, may be operated without attachment of external gas(es) and/or external power.
- Numerical panel markings indicate sequence-of-operation steps to simplify and speed start-up.
- Graphics display includes 12-second pressure waveform. Its amplitude is calibrated to the adjacent digital bar graph.
- Automatically compensates pressure transducer to altitude-related barometric pressure changes up to 25,000 ft.

Your Uni-Vent® Eagle™
Portable Ventilator

- Internal or External Power
- Internal Compressor
- Internal Air/Oxygen Mixer
- Software-generated PEEP
- Single-Patient-Use Circuit
- Fast Start-Up
- For use with Adults, Children, Infants



Uni-Vent® Eagle™

Internal or External Power



Internal Power



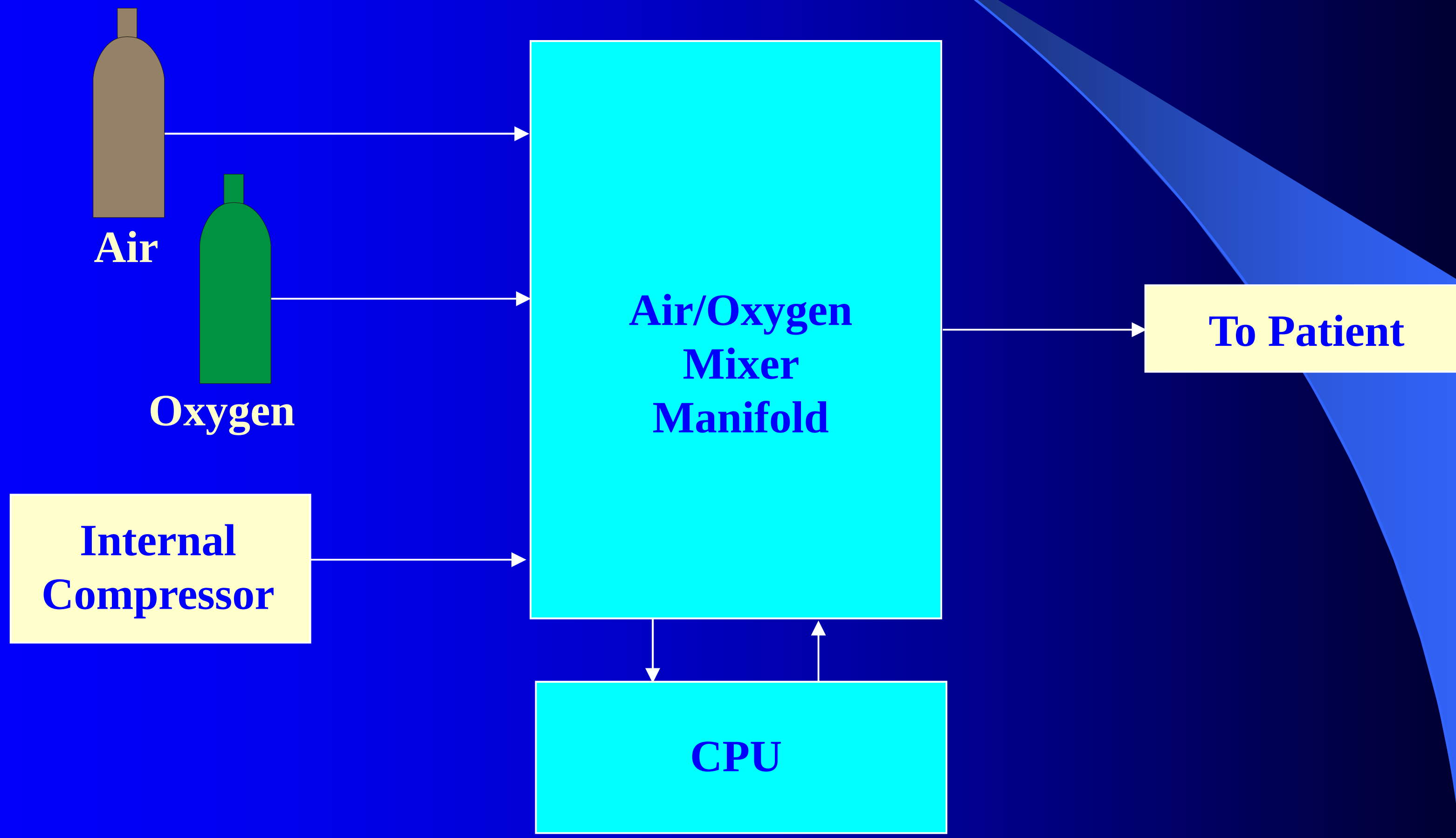
External Power



External Power Supply

Uni-Vent® Eagle™

Uses internal Compressor and/or external gas(es) with internal Blender



Getting started,
the basics…

- Ventilator circuit set-up
- Selecting a mode of operation
- Setting a ventilatory rate
- Setting an inspiratory time, or I:E ratio default
- Setting a tidal volume
- Setting an $FI0_2$
- Setting High and Low Limit Pressure alarms



Ventilator circuit set-up





- Connect 22mm corrugated hose to ventilator GAS OUT fitting
- Connect green TRANSDUCER HOSE to ventilator TRANSDUCER hose barb (Green)
- Connect clear EXHALATION VALVE HOSE to Ventilator EXHALATION VALVE hose barb (clear)

The basics…





Select a Mode of operation

Set a Ventilation Rate

Set an Inspiration Time, or I:E Ratio default

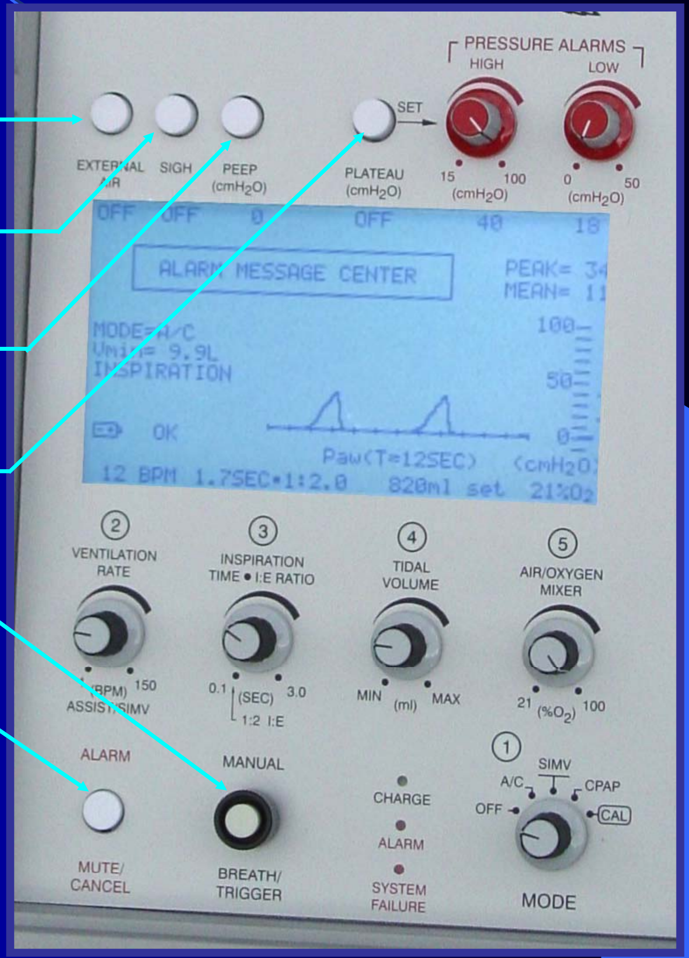
Set a Tidal Volume

Set an $FI0_2$

Set the High and Low Limit Pressure Alarms

Additional functions…

- External Air
- Sigh
- PEEP
- Pressure Plateau
- Manual Breath/Trigger
- Alarm Mute/Cancel
- Apnea Backup (Automatic)



Additional functions…

External Air

- **External Air**

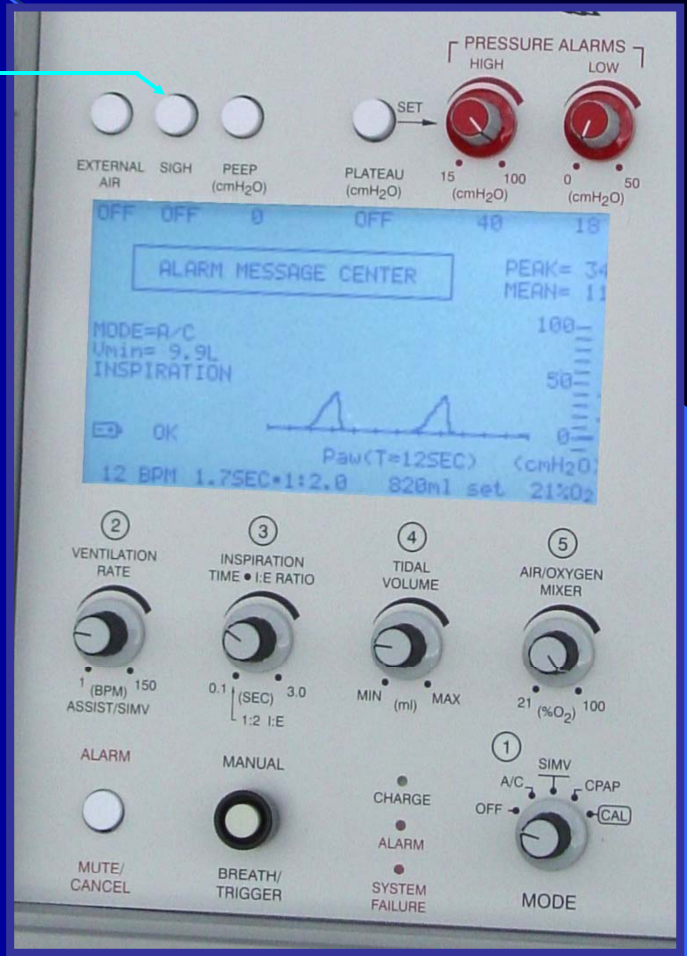
The EXTERNAL AIR Pushbutton Switch permits you to manually select external compressed air as your primary air source. When the ventilator is turned ON, its CPU "samples" the respective gas fitting and looks for an air pressure, greater than 40-PSI. If a lower pressure, or no pressure is sensed, the LCD will display "OFF" (default value) and the CPU allows operation to begin from the internal compressor. If a pressure exceeding 40-PSI (+/- 2 PSI) is sensed, the LCD will display "ON" and allow operation to begin from the external air supply. Manually pressing the pushbutton will toggle the display from "OFF" to "ON or from "ON" to "OFF".



Additional functions…

SIGH

- **SIGH**



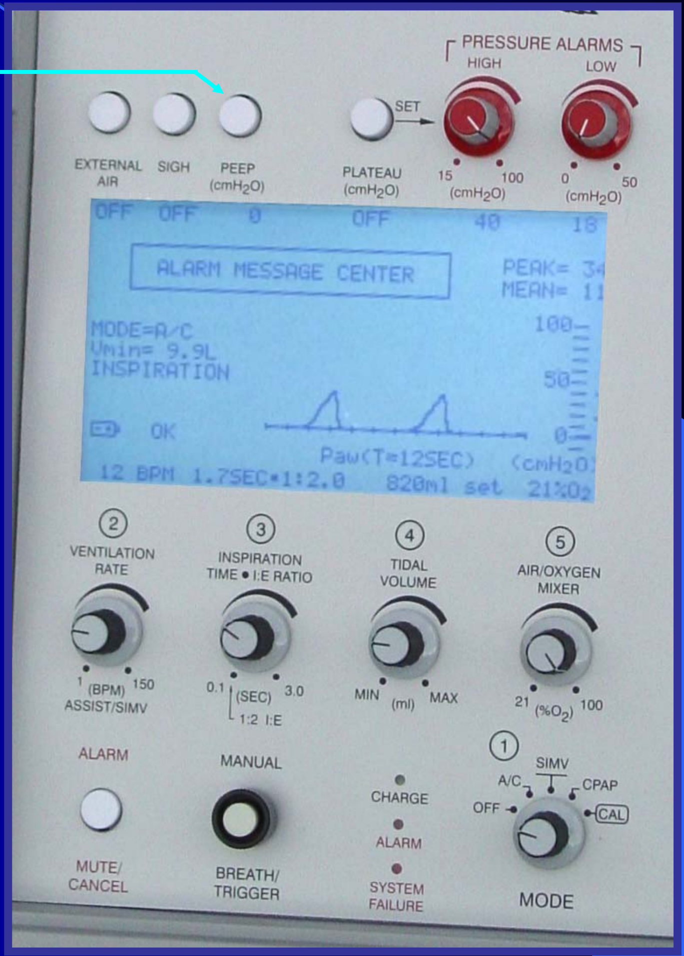
The SIGH OFF/ON Pushbutton Switch permits the ventilator to operate with or without SIGH. When the SIGH function is activated, the first ventilator-generated breath is always a SIGH. Afterwards, each additional SIGH breath is delivered once every 100 breaths or 7-minutes, whichever occurs first. A SIGH breath equals 150% of the INSPIRATION TIME setting (and the exhalation period). This will increase the delivered volume of that breath by 50%. By proportionately increasing both the inspiration and exhalation time, Uni-Vent™ maintains the I:E ratio for all breaths. As a safety precaution, Uni-Vent™ will not allow the inspiratory portion of a SIGH breath to exceed 3 seconds.

Additional functions…

PEEP

- **PEEP**

The PEEP OFF/ON-SET Value Pushbutton Switch activates Uni-Vent™'s internal PEEP learning software. When the ventilator is turned ON, PEEP has a default value of 0 cmH_2O (no PEEP). Each time the pushbutton is pressed, PEEP is increased by 1 cmH_2O up to a maximum value of 20 cmH_2O (then back to "0" again). It may take several breaths for the learning process to conclude. During this period you will see a PEEP value successively added to the pressure waveform after each breath. To protect against high airway pressures, Uni-Vent™ will "dump" PEEP (to 0 cmH_2O) if the patient should cough.

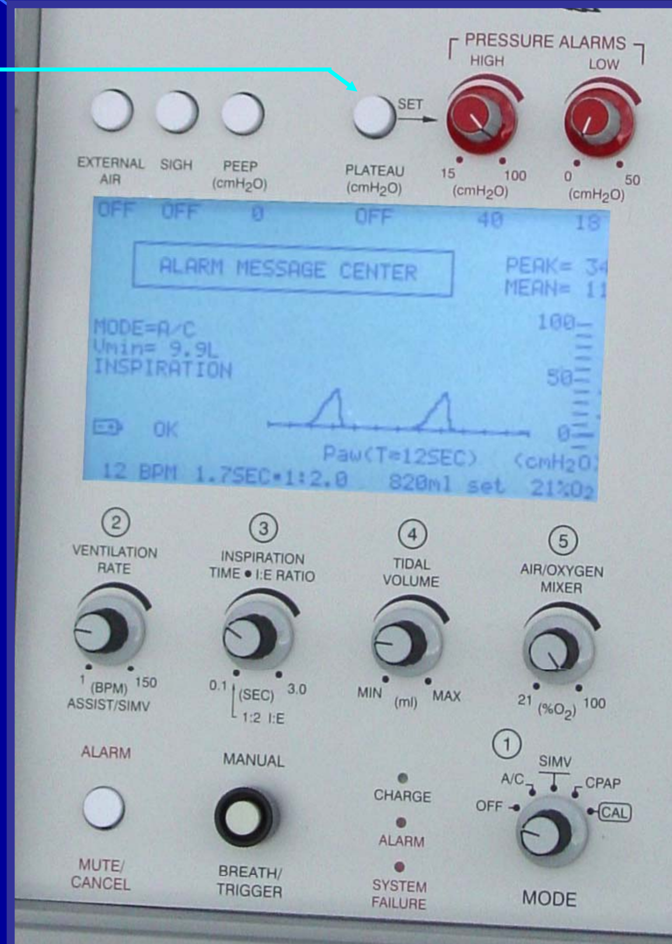


Additional functions…

Pressure Plateau Set up

- **Pressure Plateau**

When set to ON, PRESSURE PLATEAU is referenced 10 cmH_2O below the HIGH PRESSURE ALARM/PEAK INSPIRATORY PRESSURE RELIEF control setpoint. Its range is 5 to 90 cmH_2O. PRESSURE PLATEAU allows the operator to (1) sculpt a "square-like" pressure waveform by limiting the peak pressure and (2) shaping the waveform's rise time by turning the Tidal Volume Control clockwise (gas flow is increased). A PLATEAU VOLUME Advisory Alarm will be triggered if settings cause tidal volume to decrease (truncate) by more than 10% (increasing the ventilation rate by 1 or 2 BPM will offset this effect). PRESSURE PLATEAU is disabled (OFF) in the CPAP mode.

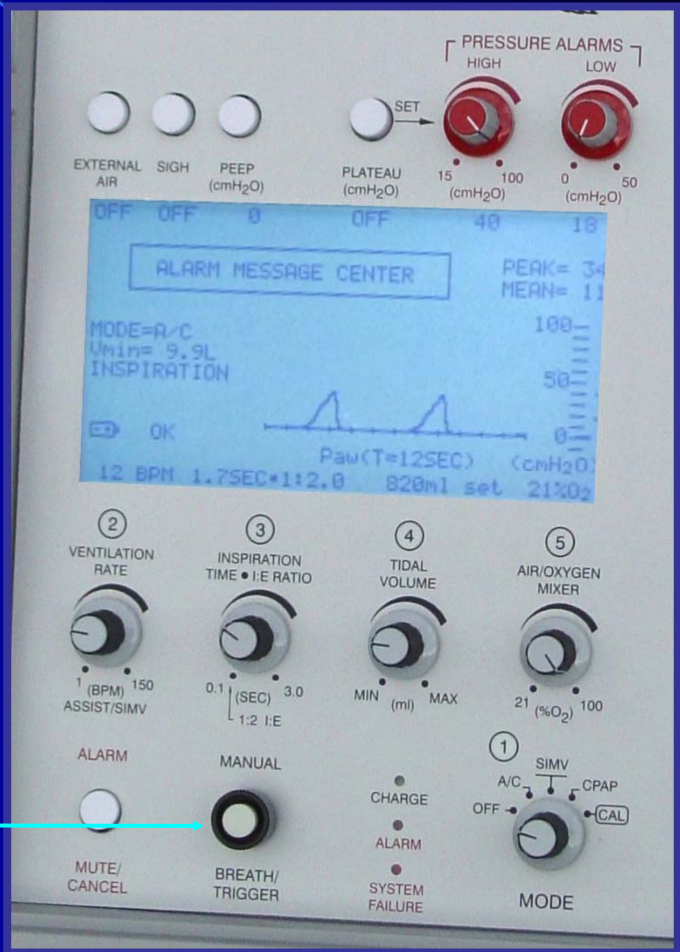


Additional functions…

Manual Breath/Trigger

- **Manual Breath/Trigger**

  The MANUAL BREATH/TRIGGER Pushbutton Switch delivers a <u>manual breath</u> each time the pushbutton switch is pressed. The inspiratory time and tidal volume of each <u>manual breath</u> is equal to the current control settings. If a ventilator failure occurs, the operator can manually <u>trigger</u> a continuous flow of gas can be triggered for as long as the pushbutton switch is pressed.

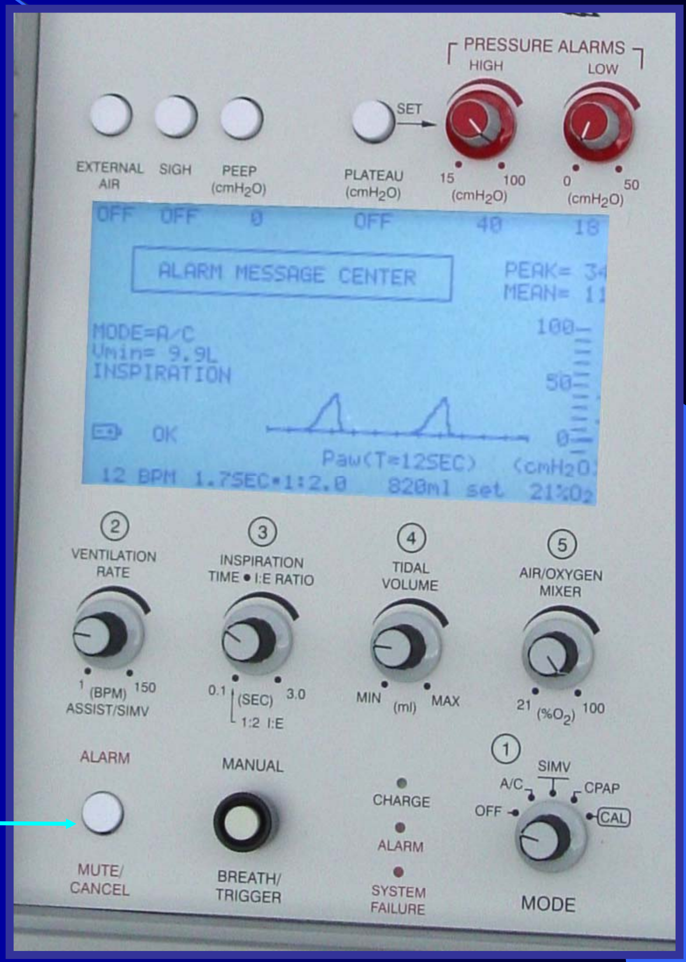


Additional functions…

Mute/Cancel Pushbutton

- **Mute/Cancel**

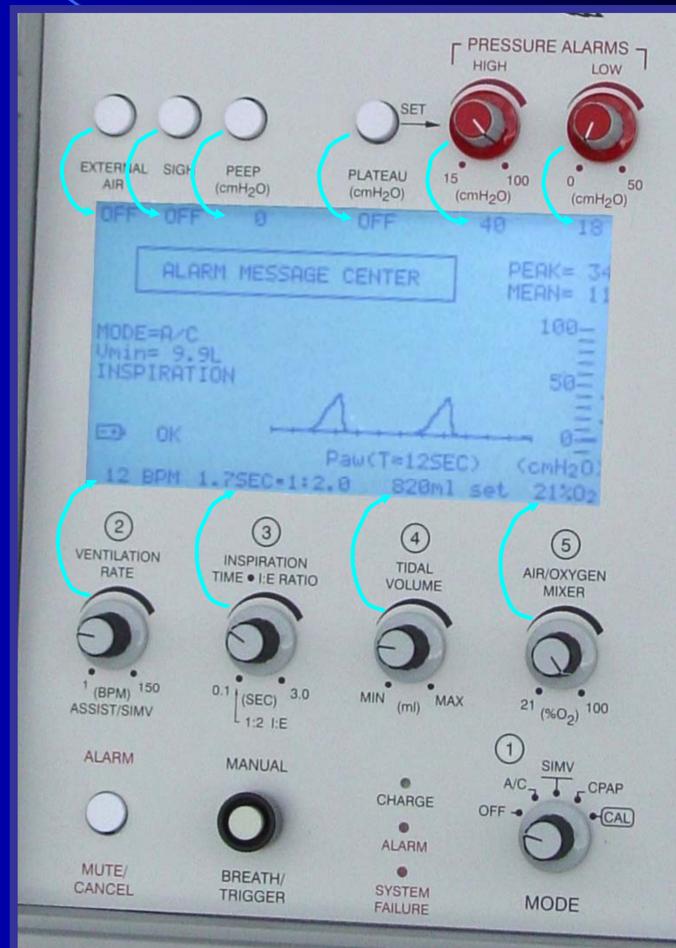
  The MUTE/CANCEL Pushbutton Switch allows the operator to temporarily mute the audible component of an Operating Alarm or cancel the audible and flashing LED Alarm Indicator components of an Advisory Alarm. Most mute periods are 30-seconds long. An External Power Low/Failure Alarm mute will last for 5-minute intervals until a Low Battery Alarm occurs and for 30-second intervals thereafter.



The LCD Screen

what you can see…

- **Control settings**
  - **EXTERNAL AIR, SIGH, PEEP, PLATEAU and PRESSURE ALARMS settings are displayed <u>under</u> their respective controls.**
  - **VENTILATION RATE, INSPIRATION TIME/I:E RATIO, TIDAL VOLUME and AIR / OXYGEN MIXER settings are displayed <u>above</u> their respective controls.**



The LCD Screen

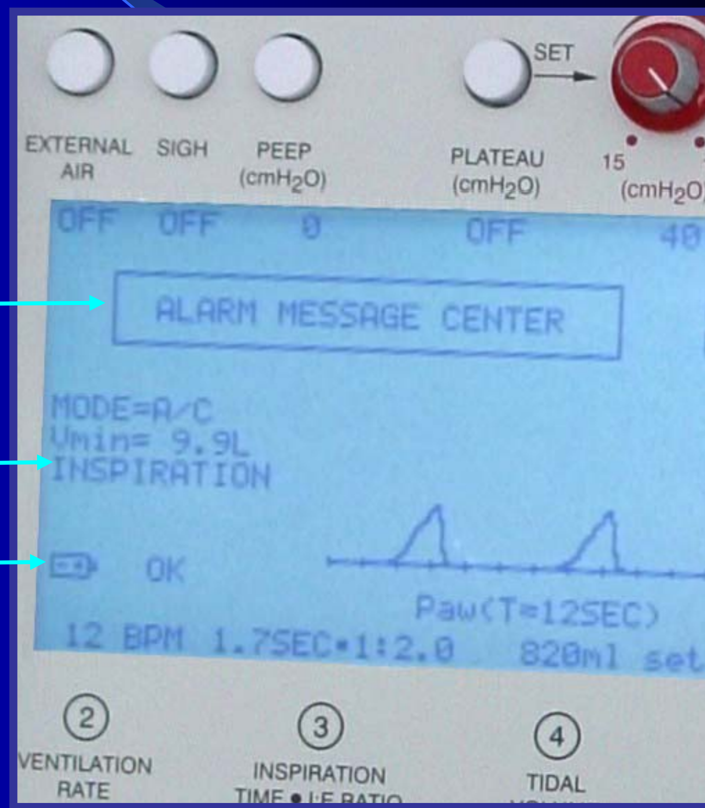
what you can see…

Cont….

ALARM MESSAGE CENTER (AMC):
The centralized location for displaying up to 4 lines of alarm message information.

MODE and Vmin indicators:
Displays operating mode and minute volume (A/C Mode).
Inhalation/Exhalation indicator:
Alternately displays the inspiration and exhalation phase of mechanical and/or spontaneous breaths.

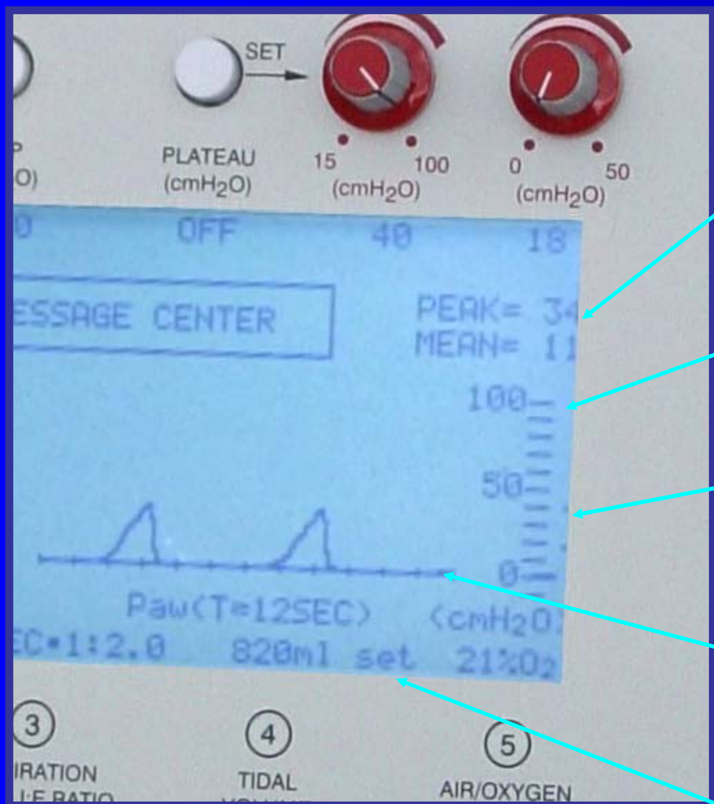
BATTERY and EXTERNAL POWER source indicators:
2-line area that displays the current status of external power, internal power, and fuses.



The LCD Screen

what you can see…

Cont.…



Peak & Mean inspiratory pressures are displayed after each breath

The digital bar graph displays peak pressure during each breath

High and Low Pressure Limit Alarm setting "tics" are continuously displayed

6-second's of pressure wave form data, including PEEP is displayed

Set and Delivered tidal volume are alternately displayed

The User Programs Menu and Factory Default Settings…

- How to access the User Menu
- Setting LCD Back Light Threshold
- Setting LCD Contrast
- Changing Trigger Level Sensitivity
- Changing Spontaneous Flow settings
- Setting the Demonstration Mode
- Testing the Backup Ventilator
- Viewing the Cumulative Hours and Days-In-Use (since last calibration) counters

The User Programs Menu



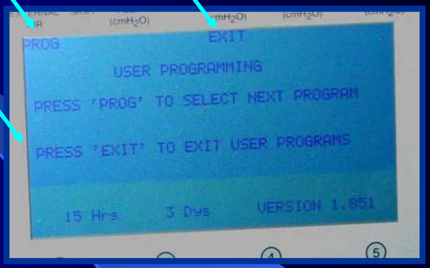
To enter the USER PROGRAMS Menu, simultaneously press the MUTE and MANUAL BREATH/TRIGGER Pushbutton Switches while turning the MODE Control Switch to A/C, SIMV, CPAP, or CAL.

User Programs Menu rules

- **Setting a new LCD Back Light Threshold causes the new setting to remain in effect unless changed at a later time.**
- **Setting a new LCD Contrast level causes the new setting to remain in effect unless changed at a later time.**
- **Setting a new Trigger Level Sensitivity causes the new setting to remain in effect <u>only</u> until operating power is cycled to OFF (then the default value, 2 cmH_2O is returned).**
- **Setting a new Spontaneous Flow causes the new setting to remain in effect <u>only</u> until operating power is cycled to OFF (then the default value, 60 LPM, is returned).**
- **Setting the Demonstration Mode to ON causes this mode to remain in effect <u>only</u> until operating power is cycled to OFF (then the default value, normal operation, is returned).**
- **Setting the Backup Ventilator to ON and enabling the Manual Trigger, causes these features to remain active <u>only</u> until operating power is cycled to OFF (then the default value, normal operation is returned).**

User Programs Menu Tree

(Follow key pad assignments/instructions on LCD Display.)

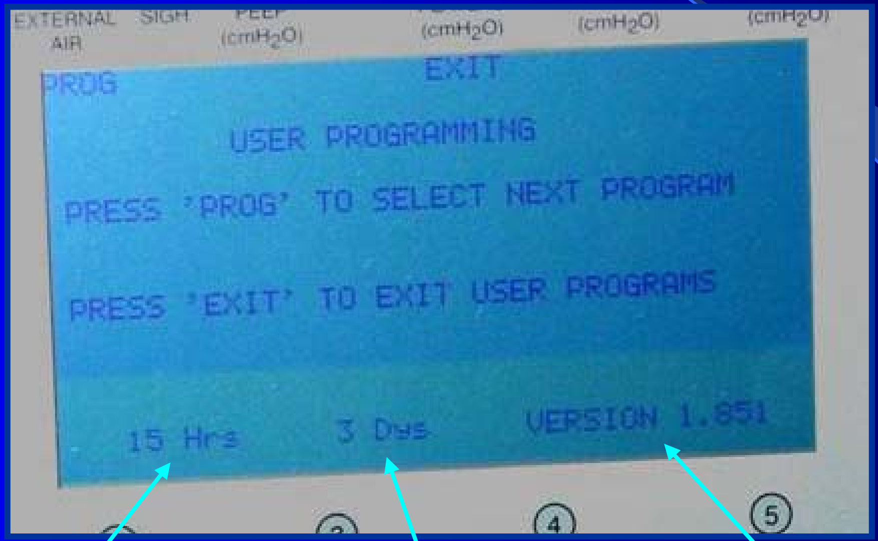


USER PROGRAM MENU →

- **LCD BACK LIGHT THRESHOLD MENU** — Sets LCD Back Light activation threshold.
- **LCD CONTRAST MENU** — LCD Contrast control. Sets viewing contrast to users preference.
- **TRIGGER LEVEL SENSITIVITY MENU** — Sets work-of-breathing (triggering sensitivity) from 1.0 to 6.0 cmH_2O (0.5 cmH_2O increments).
- **SPONTANEOUS FLOW MENU** — Sets spontaneous flow limit from 10 to 60 LPM (5 LPM increments).
- **DEMONSTRATION MODE MENU** — Allows user to operate ventilator for demonstration/training.
- **BACKUP VENTILATOR MENU** — Permits user to test Backup Ventilator and Manual Trigger.

(returns to USER PROGRAM MENU)

Viewing the Cumulative Hours and Days-In-Use (since last calibration) counters



Cumulative hours-of-use since last calibration was performed.

Cumulative number of days past since last calibration was performed.

Software version